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Statistics for laboratory scientists II

Homework problems for lecture 4

1. [Problem 10.87 in Samuels and Witmer, pg 458]

Two drugs, zidovudine (Z) and didanosine (D), were tested for their effectiveness in preventing progression of HIV disease in children. In a double-blind clinical trial, 276 children with HIV were given Z, 281 were given D, and 274 were given both Z and D. The following table shows the survival data for the three groups. [See Englund et al (1997) New England Journal of Medicine 336:1704-1712.]

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Result			
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Treatment	<i>Died</i>	<i>Survived</i>	Total
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<i>Z</i>	17	259	276
<i>D</i>	7	274	281
<i>Z+D</i>	10	264	274
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Test whether survival and treatment are independent.

- a. Calculate the chi-square test statistic and a corresponding P-value.
- b. Calculate the likelihood ratio test statistic and a corresponding P-value.
- c. Use R to perform Fisher's exact test
- d. **What do you conclude?**